// BLUE_DOT ROBOT ASSISTANT FOR ELECTIVE SUBJECTS

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Components

Demo

Social Cap.

Architechture

Introduction

LINK PREZI

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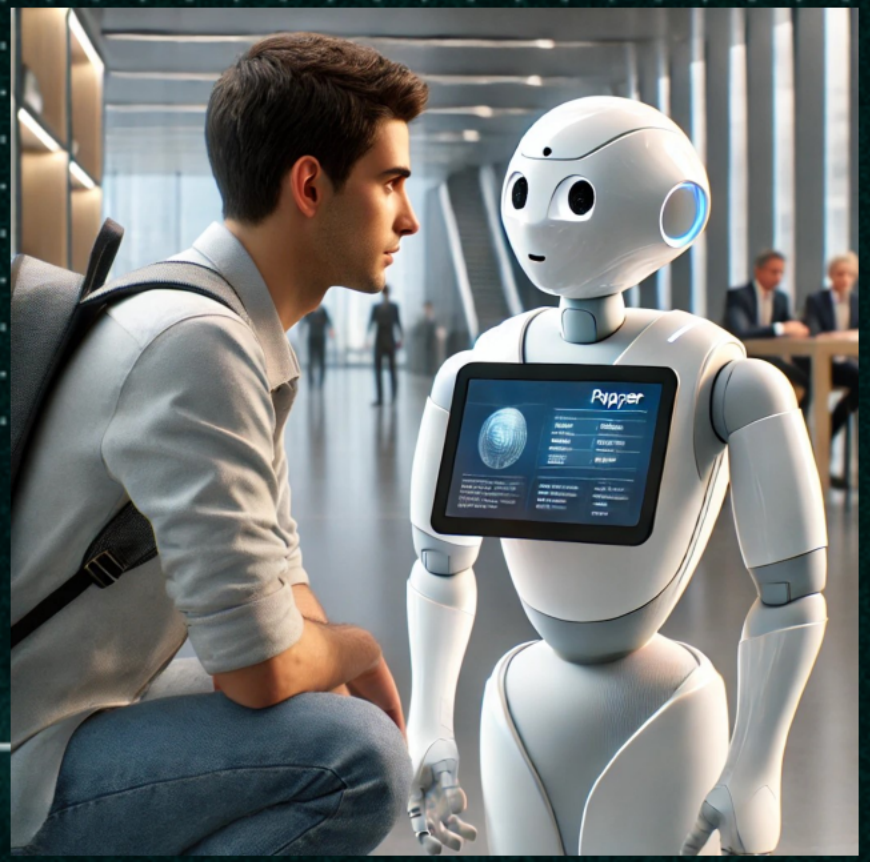
Introduction

- Blue Dot Elective Helper is a project aimed at enhancing the interaction between humans and robots, specifically using Pepper robot.

- Pepper to help students choose electives subjects in the autonomous systems master's degree at HBRS University.



Social interaction capabilities

-Pepper detects faces using a webcam. Initiates a personalized, multi-modal greeting upon face detection.

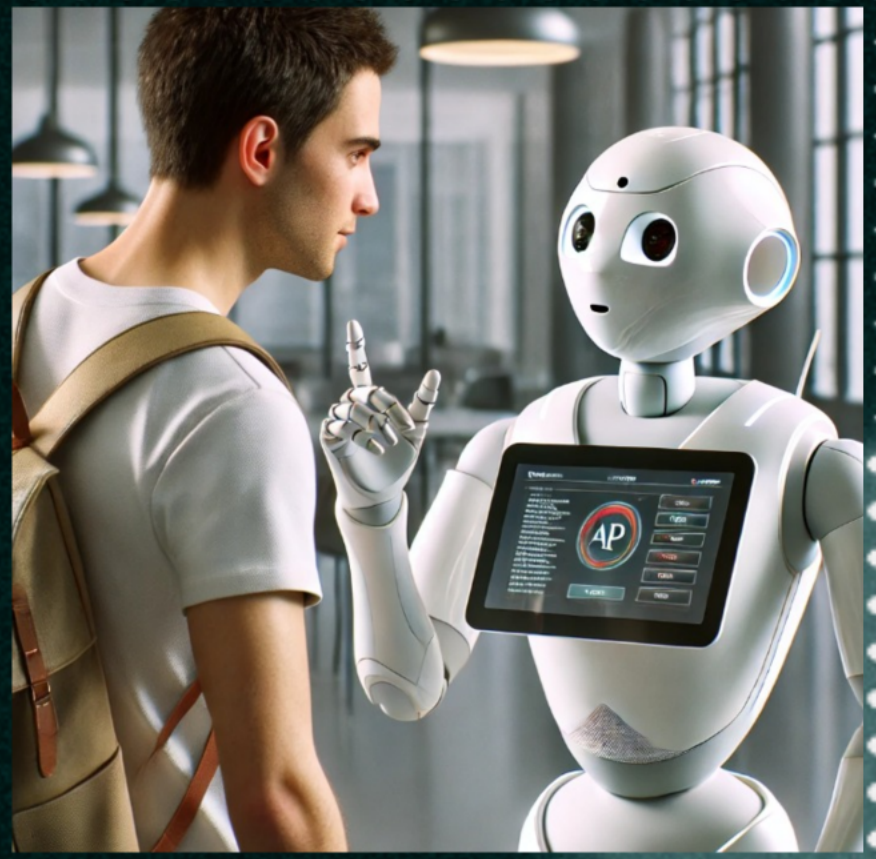
-Assists users in finding preferred elective subjects through conversation.

-Uses an internal model to recommend courses based on user preferences

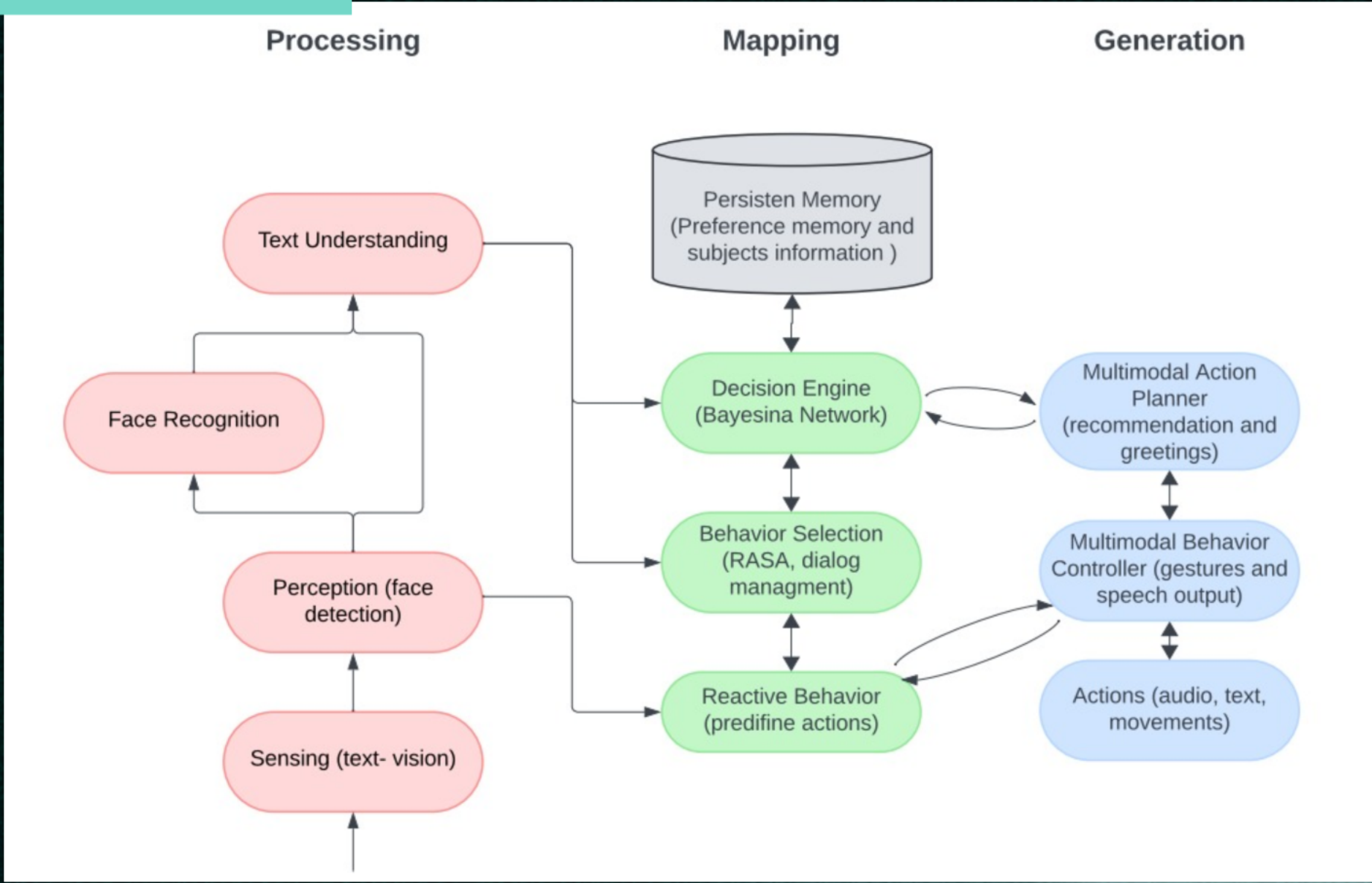
-Uses illustrative gestures during conversation.

-Bids farewell in a socially appropriate manner after the conversation.

-Filters and refrains from engaging in abusive language.



Architecture



Main compnents

The project consist in four scripts for each functionality and one for integrating all of them:

- pepper_interaction.py
- rasa_interaction.py
- bayesian_nt.py
- face_detection.py
- main.py

*all available in the public repository

Peper Interacions

Face Detection

Bayesian

rasa com.

Main

Peper Interaction

-Initial Position

- Wave Hand

-Play Sound

-Gesture Hand

-Wave Hand & say text

-Say Multiple texts

-Say Recomendation

Face Detection

Detect face and greet

- Face detection using OpenCV

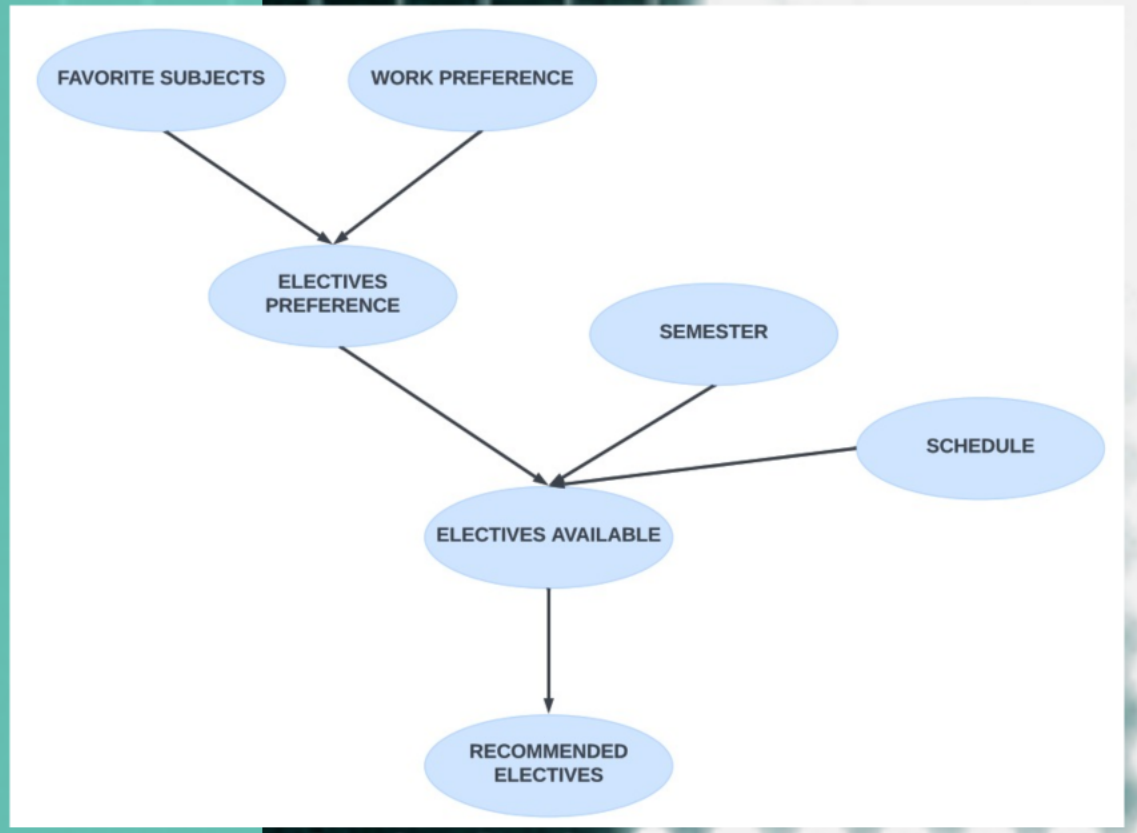
- Calculate the center of face

- Move pepper Head (yaw, pitch) to follow the center

-Start conversion if in center

Bayesian

- variables: favorite subject, work preference, semester, and schedule
- sets up relationships
- specifies conditional probability tables (CPTs)
- uses inference to determine the top three recommended electives.



Rasa interaction

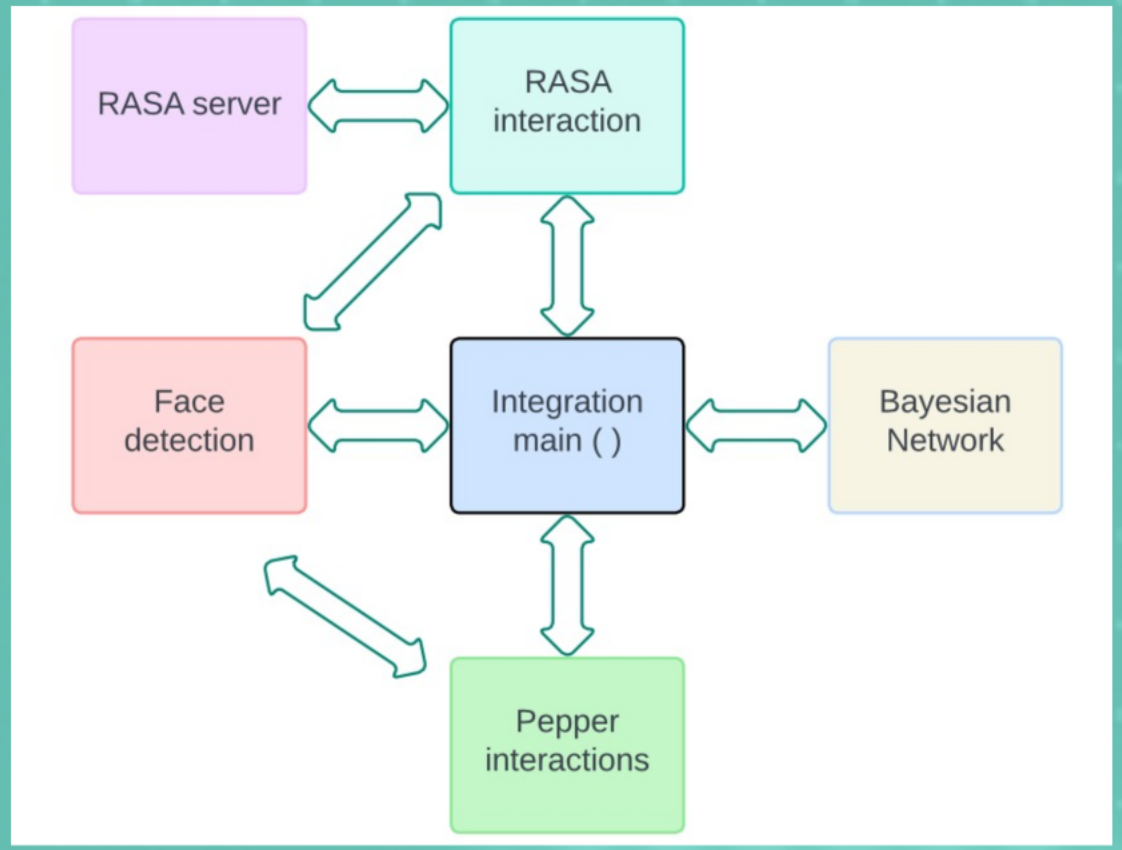
Rasa sent messeges:

- From a trained model
- Open rasa run --enable-api (start rasa server)

From script:
Using request library get messeges from server:

- text
- entities

Main


RASA server
RASA interaction
Face detection
Integration main ( )
Bayesian Network
Pepper interactions

Results

Video link: